

NEW CLAIMS

5 1. A defective viral genome comprising parental virus genome having viral replicase recognition signals located on ends 3' and 5', further comprising internal deletions, and wherein said defective viral genome depends on a helper virus for its replication.

10 2. A genome according to claim 1, comprising, additionally, the complete sequence coding for the parental virus replicase.

15 3. A genome according to the ^{claim 2} preceding claims, wherein the aforesaid parental virus is a coronavirus.

20 4. A genome according to the ^{claim 1} preceding claims, comprising a defective genome of a porcine, canine or feline coronavirus.

25 5. A genome according to claim 4, comprising a defective genome of the virus of transmissible gastroenteritis of pigs (TGEV).

30 6. A genome according to any of the ^{claim 1} preceding claims, wherein the aforesaid helper virus is the parental virus.

35 7. An expression vector based on a recombinant defective viral genome expressing at least one antigen capable of inducing systemic and secretory immune responses, comprising a defective viral genome according to claims 1 to 6, or its corresponding complementary DNA (cDNA), and, at least, one DNA sequence coding for an antigen capable of conferring systemic and mucosal immunity.

40 8. A vector according to claim 7, comprising more than one DNA sequence, each one of which codes for a different antigen capable of conferring systemic and mucosal immunity.

45 9. An expression vector based on a recombinant defective viral genome expressing at least one antibody which confers protection against an infectious agent, comprising a defective viral genome according to claims 1 to 6, or its corresponding complementary DNA (cDNA); and, at least, one DNA sequence coding for an antibody that confers protection against one infectious agent.

50 10. A vector according to claim 9, comprising more than one DNA sequence, each one of which codes for a different antibody that confers protection against an infectious agent.

55 11. A recombinant system based on recombinant defective viruses expressing, at least, one antigen capable of inducing systemic and mucosal immunity, comprising:

- a) a recombinant expression vector based on a defective viral genome according to claims 7 or 8, containing, at least, one DNA sequence coding for an antigen capable of conferring systemic and mucosal immunity; and
- b) a helper virus.

12. A system according to claim 11, wherein the aforesaid expression vector comprises more than one DNA sequence, each one of which codes for a different antigen capable of conferring systemic and mucosal immunity.

13. A system according to claim 11, comprising different expression vectors each one of which contains a different DNA sequence coding for a different antigen capable of conferring systemic and mucosal immunity.

14. A system according to any of claims 11 to 13, wherein the aforesaid helper virus is the parental virus from which the defective viral genome is derived.

15. A system according to claim 14, wherein the aforesaid helper virus provides the functional and structural proteins for the replication and encapsidation of the defective genome.

16. A system according to claim 14, wherein the aforesaid helper virus provides the structural proteins for the encapsidation of the defective genome.

17. A recombinant system based on recombinant defective viruses expressing, at least, one antibody that confers protection against an infectious agent, comprising:

- a) a recombinant expression vector based on a defective viral genome according to claims 9 or 10, containing, at least, one DNA sequence coding for an antibody that confers protection against an infectious agent, and
- b) a helper virus.

18. A system according to claim 17, wherein the aforesaid expression vector comprises more than one DNA sequence, each one of which codes for a different antibody conferring protection against an infectious agent.

19. A system according to claim 17, comprising different expression vectors each one of which contains a different DNA sequence coding for an antibody that confers protection against an infectious agent.

20. A system according to any of claims 17 to 19, wherein the aforesaid helper virus is the parental virus from which the defective viral genome is derived.

21. A system according to claim 20, wherein the aforesaid helper virus provides the functional and structural proteins for the replication and encapsidation of the defective genome.

22. A system according to claim 20, wherein the aforesaid helper virus provides the structural proteins for the encapsidation of the defective genome.

23. A vaccine capable of inducing protection in animals against an infectious agent, comprising a suitable quantity of a recombinant system according to any of claims 11 to 22, together with a pharmaceutically acceptable excipient.

24. A vaccine according to claim 23, wherein the aforesaid recombinant system comprises an expression vector containing a DNA sequence coding for an antigen capable of conferring systemic and mucosal immunity.

25. A vaccine according to claim 23, wherein the aforesaid recombinant system comprises an expression vector containing more than one DNA sequence, each one of which codes for a different antigen capable of conferring systemic and mucosal immunity.

26. A vaccine according to claim 23, wherein the aforesaid recombinant system comprises different expression vectors each one of which contains at least one different DNA sequence coding for a different antigen capable of conferring systemic and mucosal immunity.

27. A vaccine according to claim 23, suitable for the conferring of immunity against porcine infectious agents, wherein the recombinant system comprises at least one expression vector containing at least one DNA sequence coding for a porcine pathogen antigen.

28. A vaccine according to claim 23, suitable for the conferring of immunity against porcine infectious agents, wherein the recombinant system comprises one expression vector containing more than one DNA sequence, each one of which codes for a different porcine pathogen antigen.

29. A vaccine according to claim 23, suitable for the conferring of immunity against porcine infectious agents, wherein the recombinant system comprises different expression vectors each one of which contains at least one DNA sequence coding for a porcine pathogen antigen.

30. A vaccine according to claims 27 to 29, wherein the aforesaid porcine pathogen is selected from a group consisting essentially of: *Actinobacillus suis*, *Actinobacillus pleuropneumoniae*, *Haemophilus parasuis*, Porcine parvovirus, *Leptospira*, *Escherichia coli*, *Erysipelothrix rhusiopathiae*, *Pasteurella multocida*, *Bordetella bronchiseptica*, *Clostridium* sp., *Serpulina hyodysenteriae*, *Mycoplasma hyopneumoniae*, porcine epidemic diarrhea virus (PEDV), porcine respiratory coronavirus, rotavirus, or against the pathogens causative of porcine reproductive and respiratory syndrome, Aujeszky's disease (pseudorabies), swine influenza or transmissible gastroenteritis and the etiologic agents of atrophic rhinitis and proliferative ileitis.

31. A vaccine according to claim 23, suitable for the conferring of immunity against canine infectious agents, wherein the recombinant system comprises at least one expression vector containing at least one DNA sequence coding for a canine pathogen antigen.

32. A vaccine according to claim 23, suitable for the conferring of immunity against canine infectious agents, wherein the recombinant system comprises an expression vector containing more than one DNA sequence, each one of which codes for a different canine pathogen antigen.

33. A vaccine according to claim 23, suitable for the conferring of immunity against canine infectious agents, wherein the recombinant system comprises different expression vectors each one of which contains at least one DNA sequence coding for a canine pathogen antigen.

34. A vaccine according to claims 31 to 33, wherein the aforesaid canine pathogen is selected from a group constituted essentially of: canine herpesviruses, canine adenovirus types 1 and 2, canine parvovirus types 1 and 2, canine reovirus, canine rotavirus, canine coronavirus, canine parainfluenza virus, canine influenza virus, distemper virus, rabies virus, retovirus and canine calicivirus.

35. A vaccine according to claim 23, suitable for the conferring of immunity against feline infectious agents, wherein the recombinant system comprises at least one expression vector containing at least one DNA sequence coding for a feline pathogen antigen.

36. A vaccine according to claim 23, suitable for the conferring of immunity against feline infectious agents, wherein the recombinant system comprises one expression vector containing more than one DNA sequence, each one of which codes for a feline pathogen antigen.

37. A vaccine according to claim 23, suitable for the conferring of immunity against feline infectious agents, wherein the recombinant system comprises different expression vectors each one of which contains at least one DNA sequence coding for one feline pathogen antigen.

38. A vaccine according to claims 35 to 37, wherein the aforesaid feline pathogen is selected from a group constituted essentially of: feline calicivirus, feline immunodeficiency virus, feline herpesviruses, feline panleukopenia virus, feline reovirus, feline rotavirus, feline coronavirus, feline infectious peritonitis virus, rabies virus, feline Chlamydia psittaci and feline leukemia virus.

39. A vaccine according to claim 23, wherein the aforesaid recombinant system comprises an expression vector containing a DNA sequence coding for an antibody that confers protection against an infectious agent.

40. A vaccine according to claim 23, wherein the said recombinant system comprises an expression vector containing more than one DNA sequence, each one of which codes for an antibody conferring protection against an infectious agent.

41. A vaccine according to claim 23, wherein the said recombinant system comprises different expression vectors each one of which contains at least a different DNA sequence coding for an antigen that confers protection against an infectious agent.

42. A vaccine according to claim 23, suitable for the conferring of immunity against a porcine infectious agent, wherein the recombinant system comprises at least one expression vector containing at least one DNA sequence coding for an antibody that confers protection against the aforesaid porcine infectious agent.

5 43. A vaccine according to claim 42, wherein the recombinant system comprises at least one expression vector containing at least one DNA sequence coding for the monoclonal antibody identified as 6A.C3 capable of neutralizing the virus of transmissible gastroenteritis of pigs (TGEV).

44. A vaccine according to claim 23 wherein the helper virus of the recombinant system comprises a coronavirus.

10 45. A vaccine according to claim 44, wherein the aforesaid coronavirus is selected from the group composed of porcine, canine and feline coronaviruses.

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